



1  
00:05:49,029 --> 00:01:11,250

[Music]

2  
00:05:51,270 --> 00:05:50,790  
turn mission so what we can see over

3  
00:05:54,230 --> 00:05:51,280  
here

4  
00:05:54,950 --> 00:05:54,240  
is the stack spacecraft my role on march

5  
00:05:56,790 --> 00:05:54,960  
2020

6  
00:05:58,309 --> 00:05:56,800  
is assembly test and launch operations

7  
00:06:00,710 --> 00:05:58,319  
which is atlo where

8  
00:06:01,510 --> 00:06:00,720  
all the delivered components of hardware

9  
00:06:03,270 --> 00:06:01,520  
come together

10  
00:06:05,590 --> 00:06:03,280  
and make the spacecraft in the southwest

11  
00:06:08,309 --> 00:06:05,600  
corner over here we have our flight

12  
00:06:09,110 --> 00:06:08,319  
mars 2020 rover and we have the entire

13  
00:06:12,309 --> 00:06:09,120

mobility

14

00:06:14,950 --> 00:06:12,319

system

15

00:06:16,790 --> 00:06:14,960

we try to test all of our hardware to

16

00:06:20,150 --> 00:06:16,800

the environment that we would see

17

00:06:22,710 --> 00:06:20,160

for launch of the vehicle for crews

18

00:06:23,350 --> 00:06:22,720

the the journey from earth to mars for

19

00:06:25,749 --> 00:06:23,360

the entry

20

00:06:27,670 --> 00:06:25,759

into the mars atmosphere for landing as

21

00:06:29,110 --> 00:06:27,680

well as the surface of mars

22

00:06:31,270 --> 00:06:29,120

every once in a while we come up and

23

00:06:32,309 --> 00:06:31,280

take a quick look with all the craziness

24

00:06:32,710 --> 00:06:32,319

you kind of lose sight of it a little

25

00:06:34,870 --> 00:06:32,720

bit

26

00:06:36,390 --> 00:06:34,880

over the years it becomes like your

27

00:06:38,070 --> 00:06:36,400

non-living child

28

00:06:39,510 --> 00:06:38,080

so you really want to see it do well and

29

00:06:42,070 --> 00:06:39,520

perform the best that it can

30

00:06:42,870 --> 00:06:42,080

it reminds you that hey everything that

31

00:06:44,150 --> 00:06:42,880

you're touching

32

00:06:46,309 --> 00:06:44,160

all this hard work that you're putting

33

00:06:47,510 --> 00:06:46,319

in the long hours if it was easy

34

00:06:49,909 --> 00:06:47,520

everyone would be doing it

35

00:06:51,670 --> 00:06:49,919

we're sending hardware that we built on

36

00:06:57,189 --> 00:06:51,680

earth to another planet

37

00:07:01,029 --> 00:06:59,350

i'm marina jericho with nasa's jet

38

00:07:03,909 --> 00:07:01,039

propulsion laboratory

39

00:07:06,309 --> 00:07:03,919

jpl is where the mars 2020 mission and

40

00:07:07,990 --> 00:07:06,319

the perseverance rover are managed here

41

00:07:09,749 --> 00:07:08,000

in southern california

42

00:07:11,110 --> 00:07:09,759

getting to mars is a test of

43

00:07:13,749 --> 00:07:11,120

perseverance in

44

00:07:14,710 --> 00:07:13,759

itself it takes thousands of people

45

00:07:17,510 --> 00:07:14,720

working together

46

00:07:18,469 --> 00:07:17,520

to make this mission a success today we

47

00:07:21,510 --> 00:07:18,479

are with one of the

48

00:07:24,150 --> 00:07:21,520

many faces behind the spacecraft

49

00:07:25,189 --> 00:07:24,160

as the mars 2020 missions aeroshell

50

00:07:27,990 --> 00:07:25,199

vehicle lead

51  
00:07:29,350 --> 00:07:28,000  
michelle tomi kalizzi was very busy in

52  
00:07:32,390 --> 00:07:29,360  
cape canaveral florida

53  
00:07:35,670 --> 00:07:32,400  
making sure that the rover was ready for

54  
00:07:36,150 --> 00:07:35,680  
launch last month on the atlo assembly

55  
00:07:38,870 --> 00:07:36,160  
test

56  
00:07:41,110 --> 00:07:38,880  
and launch operations team after a

57  
00:07:43,029 --> 00:07:41,120  
successful launch of perseverance

58  
00:07:44,550 --> 00:07:43,039  
she joins us live back home in

59  
00:07:46,869 --> 00:07:44,560  
california to answer

60  
00:07:48,550 --> 00:07:46,879  
some questions if you have any questions

61  
00:07:50,950 --> 00:07:48,560  
you can leave them right here

62  
00:07:52,790 --> 00:07:50,960  
in the youtube chat in light of the

63  
00:07:54,070 --> 00:07:52,800

times i'm talking to michelle in

64

00:07:56,710 --> 00:07:54,080

separate locations

65

00:07:58,309 --> 00:07:56,720

as we are social distancing welcome

66

00:08:00,550 --> 00:07:58,319

michelle and welcome back home to

67

00:08:02,390 --> 00:08:00,560

california

68

00:08:04,070 --> 00:08:02,400

thank you marina it's very great to be

69

00:08:04,710 --> 00:08:04,080

back especially after a successful

70

00:08:06,550 --> 00:08:04,720

launch

71

00:08:08,230 --> 00:08:06,560

so now we're just patiently waiting from

72

00:08:11,749 --> 00:08:08,240

home doing work until

73

00:08:11,990 --> 00:08:11,759

the landing in february yes we are all

74

00:08:16,390 --> 00:08:12,000

in

75

00:08:18,550 --> 00:08:16,400

february so how did it feel

76

00:08:22,230 --> 00:08:18,560

to be out there in florida a few weeks

77

00:08:24,230 --> 00:08:22,240

ago seeing perseverance launch

78

00:08:26,070 --> 00:08:24,240

it was so surreal i mean it's a

79

00:08:28,469 --> 00:08:26,080

culmination of five years of work

80

00:08:30,710 --> 00:08:28,479

from just hundreds of engineers and

81

00:08:32,709 --> 00:08:30,720

technicians from all over the world

82

00:08:34,550 --> 00:08:32,719

and it was just beautiful weather

83

00:08:40,630 --> 00:08:34,560

perfect day perfect launch

84

00:08:42,149 --> 00:08:40,640

uh just it was absolutely amazing to see

85

00:08:44,230 --> 00:08:42,159

and that's so wonderful that it was a

86

00:08:46,389 --> 00:08:44,240

morning launch we all know that florida

87

00:08:48,790 --> 00:08:46,399

afternoons can be very stormy

88

00:08:53,110 --> 00:08:48,800

so michelle breakdown what is your title

89

00:08:57,190 --> 00:08:55,350

so the aeroshell vehicle lead is part of

90

00:08:58,870 --> 00:08:57,200

the outlook the assembly tests and

91

00:09:01,350 --> 00:08:58,880

launch operations team

92

00:09:03,350 --> 00:09:01,360

and the spacecraft is actually divided

93

00:09:05,750 --> 00:09:03,360

into five major components

94

00:09:07,350 --> 00:09:05,760

we have the cruise stage we have the

95

00:09:08,150 --> 00:09:07,360

aeroshell which is back shell and heat

96

00:09:09,590 --> 00:09:08,160

shield

97

00:09:11,990 --> 00:09:09,600

we have the descent stage and we also

98

00:09:13,590 --> 00:09:12,000

have the rover so each one of those

99

00:09:14,710 --> 00:09:13,600

vehicles and in my case two of those

100

00:09:17,269 --> 00:09:14,720

vehicles the back shell

101  
00:09:18,630 --> 00:09:17,279  
and heat shield are managed by an

102  
00:09:21,030 --> 00:09:18,640  
engineer

103  
00:09:22,630 --> 00:09:21,040  
so i have the aeroshell and i have three

104  
00:09:25,110 --> 00:09:22,640  
peers who do the others

105  
00:09:25,829 --> 00:09:25,120  
and what we are responsible for is the

106  
00:09:28,310 --> 00:09:25,839  
actual

107  
00:09:30,070 --> 00:09:28,320  
integration of the hardware the

108  
00:09:32,470 --> 00:09:30,080  
sub-assemblies that get delivered

109  
00:09:33,350 --> 00:09:32,480  
and built by other engineers at jpl and

110  
00:09:35,269 --> 00:09:33,360  
abroad

111  
00:09:37,110 --> 00:09:35,279  
um they deliver them to us and we're

112  
00:09:39,430 --> 00:09:37,120  
responsible for writing the procedures

113  
00:09:40,389 --> 00:09:39,440

and doing the actual installation work

114

00:09:44,550 --> 00:09:40,399

and testing work

115

00:09:46,389 --> 00:09:44,560

of that hardware to build the spacecraft

116

00:09:51,030 --> 00:09:46,399

and as we talked about before michelle

117

00:09:54,070 --> 00:09:51,040

this is a really fast-paced job

118

00:09:55,269 --> 00:09:54,080

oh yeah um as people's deliveries push

119

00:09:56,470 --> 00:09:55,279

later and later due to unforeseen

120

00:09:59,910 --> 00:09:56,480

circumstances

121

00:10:00,389 --> 00:09:59,920

we can't continue to push our launch

122

00:10:03,350 --> 00:10:00,399

date

123

00:10:04,150 --> 00:10:03,360

any further we have a a few a few week

124

00:10:05,910 --> 00:10:04,160

window

125

00:10:07,590 --> 00:10:05,920

that happens every two years because of

126

00:10:09,590 --> 00:10:07,600

the orbital mechanics have to be just

127

00:10:11,030 --> 00:10:09,600

right uh the planets literally have to

128

00:10:12,710 --> 00:10:11,040

be aligned in a certain way where we

129

00:10:14,710 --> 00:10:12,720

have the shortest trajectory and can get

130

00:10:16,470 --> 00:10:14,720

the right speeds and the right location

131

00:10:19,430 --> 00:10:16,480

to to perform our landing

132

00:10:21,190 --> 00:10:19,440

at the jezreel crater so we work around

133

00:10:22,230 --> 00:10:21,200

the clock sometimes seven days a week

134

00:10:24,870 --> 00:10:22,240

multiple shifts

135

00:10:25,990 --> 00:10:24,880

to make sure that we do the job

136

00:10:27,990 --> 00:10:26,000

effectively

137

00:10:29,430 --> 00:10:28,000

and efficiently and so that it will

138

00:10:33,030 --> 00:10:29,440

perform as intended to

139

00:10:34,630 --> 00:10:33,040

when it does reach mars and michelle can

140

00:10:37,030 --> 00:10:34,640

you tell us why atlo

141

00:10:38,470 --> 00:10:37,040

assembly tests and launch operations is

142

00:10:41,509 --> 00:10:38,480

so important and critical to the

143

00:10:45,590 --> 00:10:44,470

so atlo is actually the place where the

144

00:10:47,190 --> 00:10:45,600

spacecraft

145

00:10:48,790 --> 00:10:47,200

comes together as a whole for the first

146

00:10:51,350 --> 00:10:48,800

time so

147

00:10:52,949 --> 00:10:51,360

the project duration is it takes years

148

00:10:54,630 --> 00:10:52,959

and years to build and test

149

00:10:57,030 --> 00:10:54,640

all of these small components of the

150

00:10:58,870 --> 00:10:57,040

spacecraft so there's various engineers

151  
00:11:00,710 --> 00:10:58,880  
who have their own piece of hardware

152  
00:11:02,550 --> 00:11:00,720  
that they design from scratch they

153  
00:11:04,310 --> 00:11:02,560  
fabricate they build they test

154  
00:11:06,790 --> 00:11:04,320  
they make sure it meets all of its

155  
00:11:07,670 --> 00:11:06,800  
requirements then at that point once

156  
00:11:09,509 --> 00:11:07,680  
they

157  
00:11:11,110 --> 00:11:09,519  
know that it will perform as it's

158  
00:11:13,269 --> 00:11:11,120  
intended to and meets all of the

159  
00:11:16,310 --> 00:11:13,279  
requirements that they have set for it

160  
00:11:18,150 --> 00:11:16,320  
they hand it over to atlo so we then put

161  
00:11:19,910 --> 00:11:18,160  
all of these little puzzle pieces

162  
00:11:21,750 --> 00:11:19,920  
together to build the rover

163  
00:11:23,350 --> 00:11:21,760

and build the larger vehicles and then

164

00:11:23,990 --> 00:11:23,360

all those come together in outlook as

165

00:11:27,350 --> 00:11:24,000

well

166

00:11:29,190 --> 00:11:27,360

to become the spacecraft

167

00:11:30,389 --> 00:11:29,200

you really have to put that rover

168

00:11:31,990 --> 00:11:30,399

through the ringer

169

00:11:34,790 --> 00:11:32,000

it's a lot about testing and

170

00:11:37,350 --> 00:11:34,800

troubleshooting isn't it

171

00:11:38,310 --> 00:11:37,360

oh absolutely we want to make sure that

172

00:11:41,190 --> 00:11:38,320

it performs

173

00:11:42,710 --> 00:11:41,200

as best as it can here on earth um and

174

00:11:44,949 --> 00:11:42,720

we catch any

175

00:11:47,030 --> 00:11:44,959

slight idiosyncrasies that we may notice

176

00:11:49,110 --> 00:11:47,040

here so we know how to

177

00:11:50,069 --> 00:11:49,120

diagnose them if something does arise on

178

00:11:52,710 --> 00:11:50,079

his journey to or

179

00:11:54,389 --> 00:11:52,720

on mars but it's better to catch it and

180

00:11:57,030 --> 00:11:54,399

understand it here while we can

181

00:11:59,190 --> 00:11:57,040

physically put hands on and do that work

182

00:12:01,509 --> 00:11:59,200

rather than everything being remote

183

00:12:03,670 --> 00:12:01,519

through um

184

00:12:04,629 --> 00:12:03,680

seven minutes transmission signals

185

00:12:08,470 --> 00:12:04,639

across space

186

00:12:11,350 --> 00:12:08,480

back to earth and you hold your breath

187

00:12:15,030 --> 00:12:11,360

in that time i'm sure

188

00:12:16,230 --> 00:12:15,040

absolutely now the rover was named

189

00:12:17,829 --> 00:12:16,240

perseverance

190

00:12:20,629 --> 00:12:17,839

what does that name mean to you

191

00:12:24,550 --> 00:12:22,790

um it actually hits pretty close to home

192

00:12:26,629 --> 00:12:24,560

i think given the current pandemic and

193

00:12:28,550 --> 00:12:26,639

everything that happened to us

194

00:12:31,030 --> 00:12:28,560

it was there were a lot of sacrifices

195

00:12:35,030 --> 00:12:31,040

made by a number of people

196

00:12:38,470 --> 00:12:35,040

to make this mission a success

197

00:12:40,629 --> 00:12:38,480

and perseverance is very resembling of

198

00:12:41,990 --> 00:12:40,639

all the sacrifices that people made

199

00:12:43,670 --> 00:12:42,000

being away from home

200

00:12:44,949 --> 00:12:43,680

having to work from home and set up a

201  
00:12:45,829 --> 00:12:44,959  
home office if they didn't have it

202  
00:12:49,910 --> 00:12:45,839  
before

203  
00:12:52,310 --> 00:12:49,920  
to relocate their everyday routine

204  
00:12:53,350 --> 00:12:52,320  
to be able to support and make this

205  
00:12:57,829 --> 00:12:53,360  
still happen

206  
00:13:02,150 --> 00:13:00,069  
and michelle a lot of the atlo team was

207  
00:13:05,110 --> 00:13:02,160  
away from their family for quite some

208  
00:13:10,069 --> 00:13:08,150  
yeah we relocated to

209  
00:13:11,350 --> 00:13:10,079  
cape canaveral florida we shipped the

210  
00:13:13,269 --> 00:13:11,360  
spacecraft over

211  
00:13:14,389 --> 00:13:13,279  
some components as early as december of

212  
00:13:17,829 --> 00:13:14,399  
2019

213  
00:13:19,829 --> 00:13:17,839

with the rover following in february and

214

00:13:21,269 --> 00:13:19,839

we did all the integration work that we

215

00:13:24,150 --> 00:13:21,279

once had done at jpl

216

00:13:25,990 --> 00:13:24,160

at cape canaveral for the final

217

00:13:29,110 --> 00:13:26,000

integration of the spacecraft

218

00:13:30,389 --> 00:13:29,120

and then that's where it gets installed

219

00:13:33,190 --> 00:13:30,399

onto the atlas v

220

00:13:34,790 --> 00:13:33,200

rocket and launched from so it was a

221

00:13:36,550 --> 00:13:34,800

long stint away from home

222

00:13:38,870 --> 00:13:36,560

uh quarantining in a place that isn't

223

00:13:39,750 --> 00:13:38,880

your home when we weren't allowed to go

224

00:13:42,629 --> 00:13:39,760

into work

225

00:13:45,670 --> 00:13:42,639

so it uh it was definitely an experience

226

00:13:50,710 --> 00:13:48,230

it was truly a test in perseverance and

227

00:13:53,670 --> 00:13:50,720

you guys did an incredible job and

228

00:13:53,990 --> 00:13:53,680

you have quite an incredible history

229

00:13:56,870 --> 00:13:54,000

with

230

00:13:58,550 --> 00:13:56,880

jpl what inspired you in your career

231

00:14:00,949 --> 00:13:58,560

path that helped get you where you are

232

00:14:04,629 --> 00:14:03,430

yeah so actually uh growing up as a kid

233

00:14:06,870 --> 00:14:04,639

my grandfather

234

00:14:07,910 --> 00:14:06,880

and both of his brothers uh my aunt and

235

00:14:11,189 --> 00:14:07,920

her husband all

236

00:14:13,750 --> 00:14:11,199

were jpl's uh my grandfather

237

00:14:15,269 --> 00:14:13,760

was actually part of the atlo team for

238

00:14:16,550 --> 00:14:15,279

the very first mars rover mars

239

00:14:18,870 --> 00:14:16,560

pathfinder

240

00:14:19,990 --> 00:14:18,880

and they had just talked so highly of

241

00:14:21,990 --> 00:14:20,000

the times of

242

00:14:23,030 --> 00:14:22,000

an experience that they had at the cape

243

00:14:25,350 --> 00:14:23,040

um how

244

00:14:26,389 --> 00:14:25,360

amazing it is to work for jpl all the

245

00:14:28,629 --> 00:14:26,399

different

246

00:14:30,389 --> 00:14:28,639

projects the discovery missions i mean

247

00:14:32,949 --> 00:14:30,399

they were part of cassini's

248

00:14:33,829 --> 00:14:32,959

voyager galileo i mean the list goes on

249

00:14:37,670 --> 00:14:33,839

and on

250

00:14:38,949 --> 00:14:37,680

and as a kid saying hey wow my grandpa

251

00:14:41,189 --> 00:14:38,959

touched something that

252

00:14:42,790 --> 00:14:41,199

got sent to space and it's sitting on

253

00:14:45,350 --> 00:14:42,800

another planet right now

254

00:14:47,030 --> 00:14:45,360

like that's just so motivating as a as a

255

00:14:49,110 --> 00:14:47,040

child to see that

256

00:14:50,629 --> 00:14:49,120

and it's just it's amazing how now

257

00:14:53,509 --> 00:14:50,639

working there being able to

258

00:14:55,189 --> 00:14:53,519

compare stories with my aunt uh with my

259

00:14:56,790 --> 00:14:55,199

grandfather actually before he passed

260

00:15:00,150 --> 00:14:56,800

earlier this year

261

00:15:02,629 --> 00:15:00,160

to see how different and yet how similar

262

00:15:03,750 --> 00:15:02,639

things are given the time span of how

263

00:15:05,430 --> 00:15:03,760

many years have passed since

264

00:15:06,870 --> 00:15:05,440

since they sent pathfinder and we're

265

00:15:10,069 --> 00:15:06,880

sending perseverance

266

00:15:13,110 --> 00:15:10,079

so it's it's a very cool connection to

267

00:15:15,829 --> 00:15:13,120

be able to have that with your family

268

00:15:16,629 --> 00:15:15,839

so it's it's just it's very inspiring to

269

00:15:22,310 --> 00:15:16,639

me

270

00:15:27,189 --> 00:15:23,990

it's a bond that you'll always be able

271

00:15:30,069 --> 00:15:27,199

to share as he was inspirational to you

272

00:15:31,430 --> 00:15:30,079

now you can inspire countless other

273

00:15:33,990 --> 00:15:31,440

people as we move

274

00:15:36,389 --> 00:15:34,000

forward so on that note we are going to

275

00:15:37,829 --> 00:15:36,399

answer some social media questions

276

00:15:40,069 --> 00:15:37,839

from all of you folks out there thank

277

00:15:41,910 --> 00:15:40,079

you so much for tuning in with us today

278

00:15:43,350 --> 00:15:41,920

we've gotten some incredible questions

279

00:15:46,230 --> 00:15:43,360

already omar

280

00:15:48,150 --> 00:15:46,240

on youtube asks michelle what is the

281

00:15:51,269 --> 00:15:48,160

most important characteristic

282

00:15:57,749 --> 00:15:54,310

i think it's dedication and willingness

283

00:15:59,670 --> 00:15:57,759

to put a hundred percent effort

284

00:16:01,189 --> 00:15:59,680

to if you don't know the answer to find

285

00:16:03,030 --> 00:16:01,199

the answer

286

00:16:05,269 --> 00:16:03,040

dedication to do it right to take pride

287

00:16:08,389 --> 00:16:05,279

in your work to work with others

288

00:16:10,790 --> 00:16:08,399

because it's not one single person can

289

00:16:11,829 --> 00:16:10,800

do the job on their own and you need to

290

00:16:14,310 --> 00:16:11,839

be willing to

291

00:16:15,269 --> 00:16:14,320

communicate and ask for help if you if

292

00:16:17,670 --> 00:16:15,279

you need it

293

00:16:18,550 --> 00:16:17,680

and having those qualities being a good

294

00:16:20,470 --> 00:16:18,560

people person

295

00:16:22,150 --> 00:16:20,480

being able to interact with others to

296

00:16:24,870 --> 00:16:22,160

accomplish a common goal

297

00:16:26,389 --> 00:16:24,880

i think is is very key to have a

298

00:16:28,790 --> 00:16:26,399

successful

299

00:16:29,509 --> 00:16:28,800

product as well as a really healthy work

300

00:16:32,150 --> 00:16:29,519

environment

301  
00:16:33,990 --> 00:16:32,160  
because it's a high stress situation and

302  
00:16:35,670 --> 00:16:34,000  
the last thing you want to do is

303  
00:16:38,310 --> 00:16:35,680  
have an argument with someone over no

304  
00:16:41,030 --> 00:16:38,320  
reason is you want a very collaborative

305  
00:16:42,710 --> 00:16:41,040  
workspace where everyone shares a common

306  
00:16:45,749 --> 00:16:42,720  
goal and is dedicated to get to that

307  
00:16:49,189 --> 00:16:47,749  
dedication and hard work as you

308  
00:16:50,230 --> 00:16:49,199  
mentioned michelle all the hardware

309  
00:16:52,710 --> 00:16:50,240  
comes together and

310  
00:16:55,110 --> 00:16:52,720  
forms the spacecraft for the first time

311  
00:16:58,310 --> 00:16:55,120  
on the atlo team so rytoy

312  
00:17:02,949 --> 00:16:58,320  
on youtube asks where is the rover right

313  
00:17:09,029 --> 00:17:06,150

so the rover is a few million miles away

314

00:17:11,029 --> 00:17:09,039

from earth as of right now i think it

315

00:17:12,069 --> 00:17:11,039

travels close to a million miles a day

316

00:17:15,350 --> 00:17:12,079

away from earth

317

00:17:17,270 --> 00:17:15,360

on its 280 million mile journey um

318

00:17:18,630 --> 00:17:17,280

building the rover actually took a

319

00:17:20,789 --> 00:17:18,640

number of years

320

00:17:23,189 --> 00:17:20,799

and it all is supposed to come together

321

00:17:26,630 --> 00:17:23,199

in aloe over the course of

322

00:17:28,309 --> 00:17:26,640

just a few months where

323

00:17:29,750 --> 00:17:28,319

we have just very stringent

324

00:17:31,750 --> 00:17:29,760

documentation

325

00:17:33,510 --> 00:17:31,760

right we have to solve a lot of small

326

00:17:35,510 --> 00:17:33,520

issues or fitment problems that may

327

00:17:37,110 --> 00:17:35,520

arise on the floor with the resources we

328

00:17:38,789 --> 00:17:37,120

have and the crew we have

329

00:17:41,669 --> 00:17:38,799

decisions need to be made quickly on the

330

00:17:46,630 --> 00:17:41,679

fly because we don't have time to just

331

00:17:47,990 --> 00:17:46,640

stop work and take a number of days or

332

00:17:51,430 --> 00:17:48,000

weeks

333

00:17:54,230 --> 00:17:51,440

to figure out a little tiny issues

334

00:17:55,029 --> 00:17:54,240

that can be resolved by the team on the

335

00:17:57,270 --> 00:17:55,039

spot

336

00:17:59,110 --> 00:17:57,280

but it definitely does take it's a

337

00:17:59,990 --> 00:17:59,120

culmination of years in developing and

338

00:18:02,230 --> 00:18:00,000

building and making

339

00:18:03,590 --> 00:18:02,240

sure that we minimize the amount of

340

00:18:05,110 --> 00:18:03,600

problems that will

341

00:18:08,710 --> 00:18:05,120

protect that could potentially occur on

342

00:18:09,909 --> 00:18:08,720

the floor when it does get put together

343

00:18:11,990 --> 00:18:09,919

yeah i remember we talked about this

344

00:18:14,230 --> 00:18:12,000

michelle it's just so much preparation

345

00:18:18,070 --> 00:18:14,240

and research ahead of time so that you

346

00:18:20,230 --> 00:18:18,080

are organized when you need to be

347

00:18:22,549 --> 00:18:20,240

oh absolutely there's no time for error

348

00:18:24,070 --> 00:18:22,559

on the floor uh you need to make sure

349

00:18:25,990 --> 00:18:24,080

that you're prepared as soon as you walk

350

00:18:28,710 --> 00:18:26,000

in because the last thing you want

351  
00:18:30,390 --> 00:18:28,720  
is a standing army of technicians and

352  
00:18:32,150 --> 00:18:30,400  
quality assurance and other engineers

353  
00:18:34,310 --> 00:18:32,160  
who are there to support your job

354  
00:18:35,270 --> 00:18:34,320  
if you're not prepared as an engineer

355  
00:18:37,430 --> 00:18:35,280  
that kind of

356  
00:18:38,710 --> 00:18:37,440  
you take a little hit and and people are

357  
00:18:39,990 --> 00:18:38,720  
standing there waiting for you to kind

358  
00:18:42,230 --> 00:18:40,000  
of get it together

359  
00:18:43,830 --> 00:18:42,240  
so a lot of times when it's such a

360  
00:18:44,789 --> 00:18:43,840  
fast-paced schedule we're working long

361  
00:18:47,590 --> 00:18:44,799  
hours we do

362  
00:18:49,190 --> 00:18:47,600  
come home at night and we research and

363  
00:18:51,270 --> 00:18:49,200

make sure that we

364

00:18:53,190 --> 00:18:51,280

absolutely know what is going on the

365

00:18:55,110 --> 00:18:53,200

following day's activities

366

00:18:59,830 --> 00:18:55,120

so we can be there on the floor to lead

367

00:19:05,830 --> 00:19:03,590

jion asks what material is on the cover

368

00:19:08,950 --> 00:19:05,840

to survive entry at such high

369

00:19:12,950 --> 00:19:11,669

so the aeroshell is actually made out of

370

00:19:14,950 --> 00:19:12,960

various materials

371

00:19:16,230 --> 00:19:14,960

so the heat shield which is the bottom

372

00:19:18,710 --> 00:19:16,240

portion of the capsule

373

00:19:21,270 --> 00:19:18,720

so down here um that's actually made of

374

00:19:21,830 --> 00:19:21,280

pika which is a phenolic impregnated

375

00:19:25,270 --> 00:19:21,840

carbon

376

00:19:27,669 --> 00:19:25,280

ablator so what it's intended to do is

377

00:19:29,669 --> 00:19:27,679

actually ablate in the atmosphere it's

378

00:19:33,270 --> 00:19:29,679

sacrificial material

379

00:19:35,270 --> 00:19:33,280

that the energy to kind of burn and

380

00:19:38,390 --> 00:19:35,280

deteriorate that material

381

00:19:40,310 --> 00:19:38,400

will be used to do that rather than

382

00:19:42,549 --> 00:19:40,320

to transfer the energy as he threw the

383

00:19:45,430 --> 00:19:42,559

material to heat up the rover

384

00:19:46,310 --> 00:19:45,440

on the back of the back shell uh we have

385

00:19:49,909 --> 00:19:46,320

it's a

386

00:19:53,430 --> 00:19:49,919

sla material that is a lockheed material

387

00:19:55,750 --> 00:19:53,440

and it's almost it's similar to a cork

388

00:19:57,430 --> 00:19:55,760

that is actually very insulative and

389

00:19:58,310 --> 00:19:57,440

they have this white protective paint

390

00:20:00,310 --> 00:19:58,320

over it

391

00:20:01,350 --> 00:20:00,320

and that actually does a very

392

00:20:03,990 --> 00:20:01,360

significant

393

00:20:05,350 --> 00:20:04,000

job of insulating the rover and descent

394

00:20:07,190 --> 00:20:05,360

stage that are inside

395

00:20:08,470 --> 00:20:07,200

because it is really important to keep

396

00:20:11,190 --> 00:20:08,480

those temperatures

397

00:20:12,789 --> 00:20:11,200

as stable as we can when it goes through

398

00:20:14,950 --> 00:20:12,799

the coldness of deep space

399

00:20:17,909 --> 00:20:14,960

and the heat of entry into the martian

400

00:20:22,870 --> 00:20:20,630

and similarly related michelle michael

401

00:20:26,950 --> 00:20:22,880

asks how do you deal with the heat

402

00:20:31,350 --> 00:20:26,960

of the mmrtg how big is the radiator

403

00:20:34,710 --> 00:20:33,190

so there's actually a full heat

404

00:20:37,110 --> 00:20:34,720

rejection system

405

00:20:39,270 --> 00:20:37,120

for that mmrtg that travels throughout

406

00:20:40,950 --> 00:20:39,280

the entire spacecraft components

407

00:20:42,870 --> 00:20:40,960

and what it does is it takes heat away

408

00:20:46,070 --> 00:20:42,880

from that and

409

00:20:49,430 --> 00:20:46,080

uh uses a freon to cool it and

410

00:20:51,029 --> 00:20:49,440

through the like long lengths of tubing

411

00:20:52,070 --> 00:20:51,039

you kind of dissipate the heat as it

412

00:20:56,310 --> 00:20:52,080

goes through

413

00:20:57,990 --> 00:20:56,320

um the size is uh it's

414

00:20:59,909 --> 00:20:58,000

more of the protective equipment around

415

00:21:01,350 --> 00:20:59,919

it is large i've never laid eyes

416

00:21:04,310 --> 00:21:01,360

specifically on

417

00:21:05,029 --> 00:21:04,320

the flight mmrtg i think very few of us

418

00:21:08,549 --> 00:21:05,039

do

419

00:21:09,430 --> 00:21:08,559

um it's a heavily uh it's a very secure

420

00:21:12,070 --> 00:21:09,440

process

421

00:21:12,549 --> 00:21:12,080

but uh it is the simulators that i have

422

00:21:14,630 --> 00:21:12,559

seen

423

00:21:16,230 --> 00:21:14,640

they are uh quite large i mean probably

424

00:21:18,630 --> 00:21:16,240

the length of my arm

425

00:21:20,870 --> 00:21:18,640

and there's a multitude of ground

426

00:21:23,190 --> 00:21:20,880

support equipment and a very large team

427

00:21:24,630 --> 00:21:23,200

of technicians and engineers who do work

428

00:21:26,310 --> 00:21:24,640

on that specifically and put that

429

00:21:27,110 --> 00:21:26,320

together and make sure that it's a very

430

00:21:29,110 --> 00:21:27,120

safe

431

00:21:30,310 --> 00:21:29,120

installation that it rejects the heat

432

00:21:33,029 --> 00:21:30,320

appropriately

433

00:21:34,710 --> 00:21:33,039

and doesn't uh heat any of the other

434

00:21:38,230 --> 00:21:34,720

surrounding components to

435

00:21:42,070 --> 00:21:41,430

and jf-106 asks do you see future

436

00:21:45,029 --> 00:21:42,080

changes

437

00:21:49,669 --> 00:21:45,039

to the components such as the aeroshield

438

00:21:53,909 --> 00:21:52,549

um i the pica and the sla have actually

439

00:21:55,510 --> 00:21:53,919

been pretty heritage

440

00:21:57,430 --> 00:21:55,520

for a number of mars missions and

441

00:21:59,029 --> 00:21:57,440

they've proven to be successful

442

00:22:01,830 --> 00:21:59,039

so i think we want to continue to fly

443

00:22:03,909 --> 00:22:01,840

them until either the aeroshell size is

444

00:22:06,230 --> 00:22:03,919

just too large where it can't

445

00:22:07,909 --> 00:22:06,240

do a sufficient job of cooling and we

446

00:22:10,070 --> 00:22:07,919

need new technology

447

00:22:11,190 --> 00:22:10,080

or unless something else that's newer

448

00:22:14,310 --> 00:22:11,200

and better that

449

00:22:16,390 --> 00:22:14,320

we can have some kind of uh

450

00:22:17,669 --> 00:22:16,400

thorough testing to give us confidence

451  
00:22:19,990 --> 00:22:17,679  
that it will

452  
00:22:21,909 --> 00:22:20,000  
exceed our expectations and exceed the

453  
00:22:24,230 --> 00:22:21,919  
performance of what we currently use

454  
00:22:25,029 --> 00:22:24,240  
but as of right now if it's not broke

455  
00:22:27,590 --> 00:22:25,039  
why fix it

456  
00:22:29,590 --> 00:22:27,600  
we've had multiple mission successes

457  
00:22:32,789 --> 00:22:29,600  
with the materials that we have

458  
00:22:35,029 --> 00:22:32,799  
and i think we really do rely

459  
00:22:37,909 --> 00:22:35,039  
heavily on that heritage it gives us

460  
00:22:41,510 --> 00:22:37,919  
confidence going into

461  
00:22:44,149 --> 00:22:41,520  
going into the mission and

462  
00:22:45,029 --> 00:22:44,159  
hopefully when we well this will be

463  
00:22:47,270 --> 00:22:45,039

another mission

464

00:22:49,110 --> 00:22:47,280

to give us additional confidence and a

465

00:22:49,909 --> 00:22:49,120

bunch of new data with our medley ii

466

00:22:51,590 --> 00:22:49,919

sensor suite

467

00:22:53,909 --> 00:22:51,600

to show us what the mars atmosphere

468

00:22:55,750 --> 00:22:53,919

entry uh conditions and stuff are so

469

00:22:58,950 --> 00:22:55,760

we've been getting more and more

470

00:23:00,630 --> 00:22:58,960

uh science and data points from the more

471

00:23:02,789 --> 00:23:00,640

missions that we have with this

472

00:23:04,789 --> 00:23:02,799

and it can continue to show us the

473

00:23:05,830 --> 00:23:04,799

pitfalls or the successes that our

474

00:23:08,870 --> 00:23:05,840

current materials

475

00:23:10,310 --> 00:23:08,880

have and michelle you you brought up a

476  
00:23:12,710 --> 00:23:10,320  
really great point you're going to have

477  
00:23:15,350 --> 00:23:12,720  
some really incredible new cameras

478  
00:23:16,149 --> 00:23:15,360  
both on the rover and on the shield that

479  
00:23:18,870 --> 00:23:16,159  
is going to actually

480  
00:23:19,270 --> 00:23:18,880  
show edl entry descent and landing in a

481  
00:23:22,390 --> 00:23:19,280  
whole

482  
00:23:25,750 --> 00:23:22,400  
a new light that we've never seen before

483  
00:23:26,310 --> 00:23:25,760  
yeah absolutely so mars 2020 has a suite

484  
00:23:29,510 --> 00:23:26,320  
of

485  
00:23:31,110 --> 00:23:29,520  
edl or entry descent landing cameras

486  
00:23:33,190 --> 00:23:31,120  
to show us some really awesome views

487  
00:23:36,549 --> 00:23:33,200  
that we weren't able to see

488  
00:23:37,350 --> 00:23:36,559

on the mars science lab or the curiosity

489

00:23:39,350 --> 00:23:37,360

mission

490

00:23:41,350 --> 00:23:39,360

so two in particular that i'm really

491

00:23:43,430 --> 00:23:41,360

excited about are the uh

492

00:23:45,190 --> 00:23:43,440

the descent stage download camera and

493

00:23:46,950 --> 00:23:45,200

the rover upload camera

494

00:23:49,029 --> 00:23:46,960

and i'm a little biased because before

495

00:23:51,909 --> 00:23:49,039

working as the aeroshell vehicle lead

496

00:23:54,149 --> 00:23:51,919

i was the cognizant engineer for what's

497

00:23:54,950 --> 00:23:54,159

called the bridal umbilical device or

498

00:23:58,549 --> 00:23:54,960

the bud

499

00:24:00,230 --> 00:23:58,559

of the sky crane that's actually like

500

00:24:02,390 --> 00:24:00,240

the wench type mechanism that

501  
00:24:04,149 --> 00:24:02,400  
lowers the rover from the descent stage

502  
00:24:06,149 --> 00:24:04,159  
on these three nylon ropes

503  
00:24:07,430 --> 00:24:06,159  
and then there's an electrical umbilical

504  
00:24:09,990 --> 00:24:07,440  
that connects the two

505  
00:24:11,510 --> 00:24:10,000  
to send signals from the descent stage

506  
00:24:13,110 --> 00:24:11,520  
to the rover before the descent stage

507  
00:24:15,029 --> 00:24:13,120  
goes and flies away

508  
00:24:16,549 --> 00:24:15,039  
so having footage of the blood

509  
00:24:18,549 --> 00:24:16,559  
functioning from up above

510  
00:24:20,470 --> 00:24:18,559  
and from down below is going to be

511  
00:24:22,149 --> 00:24:20,480  
totally awesome because i get to see

512  
00:24:23,750 --> 00:24:22,159  
the hardware i specifically worked on

513  
00:24:25,350 --> 00:24:23,760

and spent three years of my life

514

00:24:28,470 --> 00:24:25,360

building and testing

515

00:24:33,430 --> 00:24:28,480

uh to see it perform on mars

516

00:24:35,269 --> 00:24:33,440

as a never before seen kind of footage

517

00:24:37,190 --> 00:24:35,279

it's going to be exciting for all of us

518

00:24:37,830 --> 00:24:37,200

michelle to see those pictures come back

519

00:24:40,390 --> 00:24:37,840

for sure

520

00:24:40,950 --> 00:24:40,400

massimo asks which were some of the

521

00:24:43,190 --> 00:24:40,960

biggest

522

00:24:47,029 --> 00:24:43,200

challenges you and your team faced while

523

00:24:50,549 --> 00:24:47,039

working on that rover

524

00:24:53,350 --> 00:24:50,559

um i think more recently the biggest

525

00:24:56,310 --> 00:24:53,360

challenges were how do we

526

00:24:58,070 --> 00:24:56,320

continue to adapt with the coronavirus

527

00:24:58,870 --> 00:24:58,080

pandemic i mean that was something that

528

00:25:01,430 --> 00:24:58,880

was totally

529

00:25:03,350 --> 00:25:01,440

unexpected and none of us have ever been

530

00:25:06,230 --> 00:25:03,360

through anything like this before

531

00:25:07,669 --> 00:25:06,240

so management really had to sit down and

532

00:25:10,310 --> 00:25:07,679

scratch their heads and say hey

533

00:25:12,710 --> 00:25:10,320

how do we still make this clean room a

534

00:25:14,230 --> 00:25:12,720

safe environment for our engineers and

535

00:25:15,990 --> 00:25:14,240

our technicians in qa

536

00:25:17,590 --> 00:25:16,000

to come to work every day and still do

537

00:25:19,830 --> 00:25:17,600

the job we need to do

538

00:25:21,510 --> 00:25:19,840

so there was a lot of work behind there

539

00:25:23,669 --> 00:25:21,520

and luckily it's a clean room

540

00:25:25,669 --> 00:25:23,679

we're all in protective equipment full

541

00:25:27,029 --> 00:25:25,679

bunny suits all you can see are my eyes

542

00:25:28,070 --> 00:25:27,039

all day and most of the time we have

543

00:25:30,950 --> 00:25:28,080

goggles on

544

00:25:33,750 --> 00:25:30,960

there's large hepa filters that filter

545

00:25:36,310 --> 00:25:33,760

the air almost a hospital quality

546

00:25:37,669 --> 00:25:36,320

or even above grade with these filters

547

00:25:40,390 --> 00:25:37,679

because

548

00:25:41,029 --> 00:25:40,400

we're very concerned with particulate

549

00:25:43,430 --> 00:25:41,039

and

550

00:25:44,950 --> 00:25:43,440

we need to keep the spacecraft as clean

551  
00:25:46,230 --> 00:25:44,960  
as possible we send it to mars

552  
00:25:48,470 --> 00:25:46,240  
there's actually a whole planetary

553  
00:25:50,070 --> 00:25:48,480  
protection team who makes sure we stay

554  
00:25:53,029 --> 00:25:50,080  
in check and we don't dirty

555  
00:25:54,470 --> 00:25:53,039  
the spacecraft with our own germs

556  
00:25:57,990 --> 00:25:54,480  
pandemic or not

557  
00:25:59,750 --> 00:25:58,000  
so i think adapting to that um not being

558  
00:26:01,510 --> 00:25:59,760  
able to go work in your office every day

559  
00:26:02,870 --> 00:26:01,520  
having to go and do anything that's not

560  
00:26:04,870 --> 00:26:02,880  
in the clean room from

561  
00:26:06,230 --> 00:26:04,880  
the comfort of someone else's home in

562  
00:26:11,990 --> 00:26:06,240  
florida that you're renting

563  
00:26:14,230 --> 00:26:12,000

um that posed i think a really big uh

564

00:26:15,830 --> 00:26:14,240

feat that we needed to overcome right

565

00:26:17,830 --> 00:26:15,840

we're away from our families

566

00:26:19,669 --> 00:26:17,840

we rely on hanging out with each other

567

00:26:21,669 --> 00:26:19,679

and now we can't even do that so

568

00:26:22,789 --> 00:26:21,679

you really start to kind of feel a

569

00:26:24,710 --> 00:26:22,799

little bit lonely

570

00:26:26,390 --> 00:26:24,720

which you want to keep as clear and

571

00:26:28,070 --> 00:26:26,400

positive ahead as you can so you can

572

00:26:29,110 --> 00:26:28,080

come to work every day and do what you

573

00:26:31,269 --> 00:26:29,120

need to do

574

00:26:32,789 --> 00:26:31,279

and we were all able to get through it

575

00:26:36,789 --> 00:26:32,799

and we got through it together

576

00:26:39,750 --> 00:26:36,799

lots of uh texting and

577

00:26:40,950 --> 00:26:39,760

mario kart remotely with each other uh

578

00:26:43,110 --> 00:26:40,960

on the nights that

579

00:26:44,310 --> 00:26:43,120

we didn't have work the next day so we

580

00:26:45,029 --> 00:26:44,320

did what we could to try to stay

581

00:26:47,350 --> 00:26:45,039

positive

582

00:26:49,269 --> 00:26:47,360

to deal with this pandemic and keep our

583

00:26:50,390 --> 00:26:49,279

heads clear so we could come in to work

584

00:26:52,070 --> 00:26:50,400

every day

585

00:26:54,549 --> 00:26:52,080

in the clean room and do what we needed

586

00:26:58,230 --> 00:26:56,070

and michelle you brought up a really

587

00:27:00,390 --> 00:26:58,240

good point just staying positive

588

00:27:03,029 --> 00:27:00,400

and right now a lot of students are

589

00:27:05,029 --> 00:27:03,039

heading back into a virtual classroom a

590

00:27:07,510 --> 00:27:05,039

complete unknown to what they've been

591

00:27:09,350 --> 00:27:07,520

used to and scott is watching with his

592

00:27:11,029 --> 00:27:09,360

whole class right now and one of his

593

00:27:12,630 --> 00:27:11,039

students wants to ask you

594

00:27:16,549 --> 00:27:12,640

what are the possibilities of a

595

00:27:20,710 --> 00:27:18,789

so far everything's been so good so we

596

00:27:21,350 --> 00:27:20,720

are just full speed ahead hoping for the

597

00:27:23,669 --> 00:27:21,360

best

598

00:27:25,190 --> 00:27:23,679

um we've done this before with mars

599

00:27:27,909 --> 00:27:25,200

science laboratory

600

00:27:28,710 --> 00:27:27,919

and we feel confident in the work that

601  
00:27:32,950 --> 00:27:28,720  
we've done

602  
00:27:35,669 --> 00:27:32,960  
make it a successful mission

603  
00:27:37,269 --> 00:27:35,679  
so we all we can do at this point is sit

604  
00:27:41,750 --> 00:27:37,279  
back and wait and watch

605  
00:27:45,830 --> 00:27:43,510  
and a lot of students are watching so

606  
00:27:47,830 --> 00:27:45,840  
welcome to all of you students out there

607  
00:27:50,070 --> 00:27:47,840  
aldi is asking michelle what would you

608  
00:27:56,149 --> 00:27:50,080  
recommend that a high schooler should do

609  
00:27:59,269 --> 00:27:58,230  
um there's a lot of ways to get to get

610  
00:28:02,310 --> 00:27:59,279  
involved i mean

611  
00:28:04,710 --> 00:28:02,320  
we do a lot of stem outreach

612  
00:28:06,230 --> 00:28:04,720  
to schools there's especially when

613  
00:28:09,430 --> 00:28:06,240

things are open again

614

00:28:11,430 --> 00:28:09,440

i personally used to go to career fairs

615

00:28:12,950 --> 00:28:11,440

my sister-in-law is a teacher and i

616

00:28:14,630 --> 00:28:12,960

would go and support her career fair

617

00:28:18,230 --> 00:28:14,640

every single year to try to

618

00:28:20,789 --> 00:28:18,240

encourage people to study stem

619

00:28:22,070 --> 00:28:20,799

come take a tour of nasa jpl or your

620

00:28:25,029 --> 00:28:22,080

local nasa center

621

00:28:26,630 --> 00:28:25,039

i'm sure they all do tours that uh for

622

00:28:30,310 --> 00:28:26,640

the public that are open to the public

623

00:28:33,029 --> 00:28:30,320

go to events like that follow online um

624

00:28:33,909 --> 00:28:33,039

really try your best in in math and

625

00:28:36,789 --> 00:28:33,919

science

626  
00:28:38,149 --> 00:28:36,799  
that it goes a very long way and makes

627  
00:28:40,630 --> 00:28:38,159  
life a lot easier

628  
00:28:42,630 --> 00:28:40,640  
um and as you continue to grow there's a

629  
00:28:45,350 --> 00:28:42,640  
lot of internship opportunities

630  
00:28:46,710 --> 00:28:45,360  
co-op opportunities that the nasa the

631  
00:28:50,230 --> 00:28:46,720  
different nasa centers

632  
00:28:52,789 --> 00:28:50,240  
have to offer that get young students

633  
00:28:55,750 --> 00:28:52,799  
and college students involved to

634  
00:28:57,590 --> 00:28:55,760  
hands-on work on a lot of our projects

635  
00:28:59,669 --> 00:28:57,600  
i know we do have partners as well with

636  
00:29:02,789 --> 00:28:59,679  
a lot of college institutions

637  
00:29:03,590 --> 00:29:02,799  
for building certain parts or managing

638  
00:29:07,510 --> 00:29:03,600

certain parts

639

00:29:09,029 --> 00:29:07,520

of our projects and missions to space

640

00:29:11,190 --> 00:29:09,039

so there's a lot of different ways that

641

00:29:12,549 --> 00:29:11,200

you can get involved paying attention to

642

00:29:13,669 --> 00:29:12,559

the rocket launches and kind of

643

00:29:15,510 --> 00:29:13,679

educating yourself

644

00:29:17,590 --> 00:29:15,520

online reading different publications

645

00:29:19,510 --> 00:29:17,600

and articles i mean

646

00:29:20,870 --> 00:29:19,520

being involved in showing interest and

647

00:29:22,470 --> 00:29:20,880

doing your best in school

648

00:29:23,990 --> 00:29:22,480

trying to stay motivated stay out of

649

00:29:26,710 --> 00:29:24,000

trouble

650

00:29:28,230 --> 00:29:26,720

that really goes a long way and

651

00:29:30,070 --> 00:29:28,240

determination is key

652

00:29:34,310 --> 00:29:30,080

if you want something do whatever it

653

00:29:38,149 --> 00:29:37,830

and blind asmr asks how does it feel to

654

00:29:40,310 --> 00:29:38,159

be

655

00:29:44,870 --> 00:29:40,320

a woman at the forefront of the

656

00:29:51,830 --> 00:29:48,870

i to be honest i i mean i love it um

657

00:29:52,389 --> 00:29:51,840

i don't think it's i personally don't

658

00:29:54,950 --> 00:29:52,399

feel

659

00:29:56,710 --> 00:29:54,960

like i've been discriminated against for

660

00:30:00,230 --> 00:29:56,720

being a woman versus a man

661

00:30:03,029 --> 00:30:00,240

at my at jpl i think they do a

662

00:30:05,590 --> 00:30:03,039

fantastic job of recognizing and

663

00:30:08,789 --> 00:30:05,600

rewarding people based on merit

664

00:30:10,710 --> 00:30:08,799

and i work my butt off and i i

665

00:30:12,710 --> 00:30:10,720

my management has seen it my peers have

666

00:30:15,029 --> 00:30:12,720

seen it i've seen it in my peers

667

00:30:16,230 --> 00:30:15,039

and the harder you work it gets

668

00:30:19,830 --> 00:30:16,240

recognized

669

00:30:21,990 --> 00:30:19,840

and especially if you don't continue to

670

00:30:26,149 --> 00:30:22,000

boast and brag and ask about it but

671

00:30:28,950 --> 00:30:26,159

you you focus your efforts on the job

672

00:30:30,549 --> 00:30:28,960

do as best as you possibly can make

673

00:30:33,830 --> 00:30:30,559

friends with your co-workers

674

00:30:35,750 --> 00:30:33,840

do uh like you wanna foster

675

00:30:37,110 --> 00:30:35,760

a healthy productive work environment

676  
00:30:39,830 --> 00:30:37,120  
with those around you

677  
00:30:40,630 --> 00:30:39,840  
and set an example and others will

678  
00:30:43,190 --> 00:30:40,640  
follow

679  
00:30:43,990 --> 00:30:43,200  
it at least in my situation others have

680  
00:30:46,710 --> 00:30:44,000  
followed

681  
00:30:47,990 --> 00:30:46,720  
i work in a predominantly male male

682  
00:30:51,110 --> 00:30:48,000  
dominated

683  
00:30:52,470 --> 00:30:51,120  
industry and i actually do have a lot of

684  
00:30:54,549 --> 00:30:52,480  
friends both male and female

685  
00:30:55,750 --> 00:30:54,559  
in the industry and we all just mesh

686  
00:30:58,389 --> 00:30:55,760  
together well

687  
00:30:59,909 --> 00:30:58,399  
um if you don't know something people

688  
00:31:01,750 --> 00:30:59,919

aren't

689

00:31:04,470 --> 00:31:01,760

quick to call you out on it but instead

690

00:31:04,950 --> 00:31:04,480

they want to help you learn and i think

691

00:31:07,909 --> 00:31:04,960

just

692

00:31:09,029 --> 00:31:07,919

fostering that collaborative and healthy

693

00:31:11,269 --> 00:31:09,039

work environment with

694

00:31:12,950 --> 00:31:11,279

others really goes a long way to make

695

00:31:15,830 --> 00:31:12,960

the experience good for you and for

696

00:31:19,190 --> 00:31:16,950

at the end of the day michelle it's

697

00:31:22,870 --> 00:31:19,200

about getting the job done that's

698

00:31:24,789 --> 00:31:22,880

for sure is sean asks is there anything

699

00:31:28,389 --> 00:31:24,799

extra that i can do so that i can work

700

00:31:33,590 --> 00:31:32,789

uh apply apply i mean uh just monitor

701  
00:31:35,750 --> 00:31:33,600  
constantly

702  
00:31:37,909 --> 00:31:35,760  
the the nasa careers the jbl whatever

703  
00:31:41,509 --> 00:31:37,919  
your closest nasa center is

704  
00:31:42,710 --> 00:31:41,519  
apply um i mean internships work

705  
00:31:45,669 --> 00:31:42,720  
experience helps

706  
00:31:45,990 --> 00:31:45,679  
get involved in your community right uh

707  
00:31:48,389 --> 00:31:46,000  
a lot

708  
00:31:49,750 --> 00:31:48,399  
of outreach helps that looks that looks

709  
00:31:51,990 --> 00:31:49,760  
great on a resume

710  
00:31:53,110 --> 00:31:52,000  
so build your resume with with different

711  
00:31:56,310 --> 00:31:53,120  
experiences

712  
00:31:59,669 --> 00:31:56,320  
um of helping people of tutoring

713  
00:32:01,669 --> 00:31:59,679

of um working on like judging a robotics

714

00:32:02,149 --> 00:32:01,679

competition at your local elementary

715

00:32:04,710 --> 00:32:02,159

school

716

00:32:06,630 --> 00:32:04,720

getting involved mentoring people i mean

717

00:32:09,110 --> 00:32:06,640

a lot of the soft skills like that

718

00:32:09,990 --> 00:32:09,120

go a really long way in building an

719

00:32:11,750 --> 00:32:10,000

application

720

00:32:13,990 --> 00:32:11,760

right we have some of the brightest

721

00:32:15,750 --> 00:32:14,000

minds but they're very well-rounded

722

00:32:17,350 --> 00:32:15,760

people so it's not all about being the

723

00:32:20,310 --> 00:32:17,360

smartest person in the room

724

00:32:21,909 --> 00:32:20,320

it's about being a smart enough person

725

00:32:24,070 --> 00:32:21,919

who can also

726

00:32:26,149 --> 00:32:24,080

hold a conversation who isn't quick to

727

00:32:28,070 --> 00:32:26,159

judge people who works hard

728

00:32:29,509 --> 00:32:28,080

who ask questions if they don't know it

729

00:32:31,350 --> 00:32:29,519

and is willing to do whatever it takes

730

00:32:31,750 --> 00:32:31,360

to find the answer even if they don't

731

00:32:35,190 --> 00:32:31,760

know

732

00:32:38,630 --> 00:32:35,200

just getting

733

00:32:40,310 --> 00:32:38,640

involved and building building a good

734

00:32:42,789 --> 00:32:40,320

resume with experiences with others

735

00:32:44,789 --> 00:32:42,799

networking is key um and just

736

00:32:46,070 --> 00:32:44,799

keep an eye out and see what jobs are

737

00:32:48,710 --> 00:32:46,080

available and apply

738

00:32:50,470 --> 00:32:48,720

there's no uh there's no penalty in

739

00:32:52,470 --> 00:32:50,480  
applying so apply to everything

740

00:32:53,509 --> 00:32:52,480  
do as much as you can there and just get

741

00:32:58,710 --> 00:32:53,519  
your name out there

742

00:33:03,029 --> 00:33:00,950  
of perseverance michelle thank you so

743

00:33:03,269 --> 00:33:03,039  
much for joining us today you are truly

744

00:33:06,470 --> 00:33:03,279  
an

745

00:33:09,990 --> 00:33:06,480  
inspiration it's my pleasure

746

00:33:12,389 --> 00:33:10,000  
thank you guys for having me the rover

747

00:33:13,870 --> 00:33:12,399  
is slated to land on the red planet

748

00:33:16,789 --> 00:33:13,880  
february 18

749

00:33:18,630 --> 00:33:16,799  
2021. for the latest on the mission

750

00:33:21,350 --> 00:33:18,640  
follow at nasa persevere

751  
00:33:23,430 --> 00:33:21,360  
on twitter and facebook you can watch

752  
00:33:24,310 --> 00:33:23,440  
all of the behind the spacecraft video

753  
00:33:27,430 --> 00:33:24,320  
profiles

754  
00:33:29,269 --> 00:33:27,440  
on the nasa 360 youtube channel

755  
00:33:30,950 --> 00:33:29,279  
we will be doing q and a's with mission

756  
00:33:33,750 --> 00:33:30,960  
team members over the coming months

757  
00:33:34,870 --> 00:33:33,760  
so be sure to subscribe to our nasa jpl

758  
00:33:37,590 --> 00:33:34,880  
youtube channel

759  
00:33:39,269 --> 00:33:37,600  
for notifications if you want to explore

760  
00:33:39,830 --> 00:33:39,279  
the universe from the comfort of your

761  
00:33:43,110 --> 00:33:39,840  
home

762  
00:33:46,230 --> 00:33:43,120  
for

763  
00:33:46,870 --> 00:33:46,240

families and kids of all ages you can

764

00:33:49,909 --> 00:33:46,880

find them

765

00:33:52,230 --> 00:33:49,919

on the nasa.gov homepage

766

00:33:54,310 --> 00:33:52,240

thank you to everyone for joining us

767

00:33:55,590 --> 00:33:54,320

here today and a big shout out to all

768

00:33:57,909 --> 00:33:55,600

the kids out there

769

00:33:59,430 --> 00:33:57,919

who are starting school good luck in